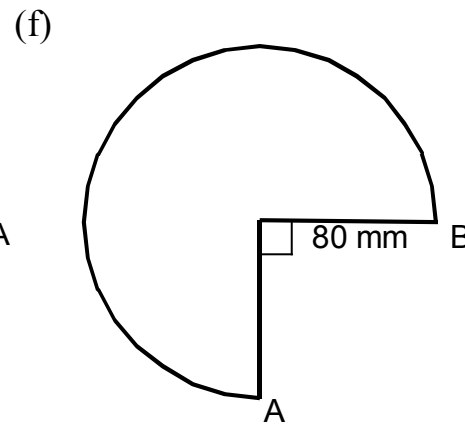
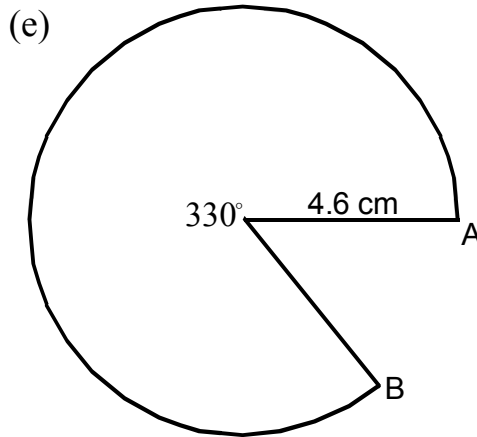
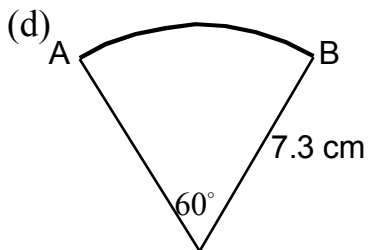
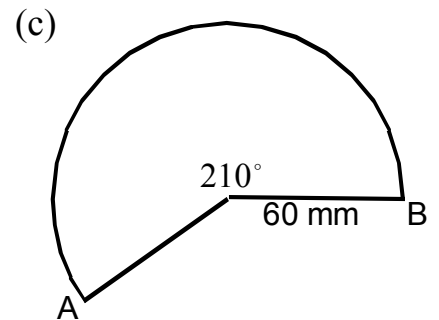
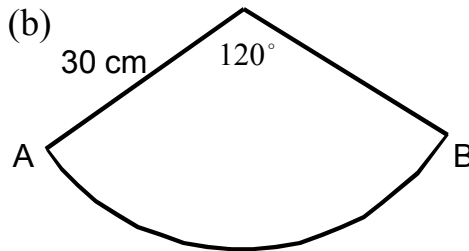
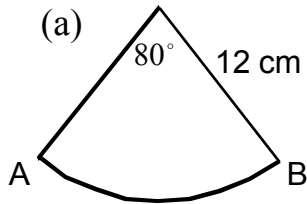
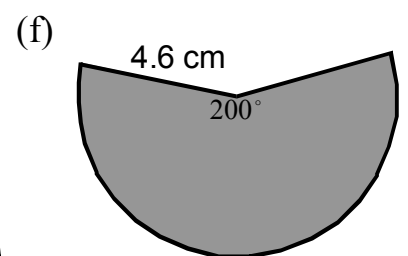
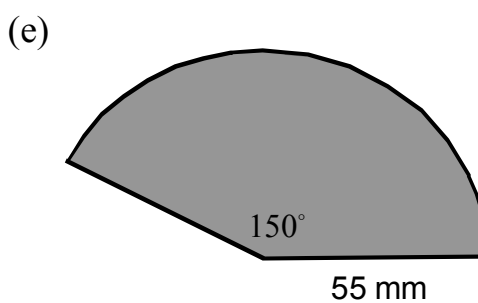
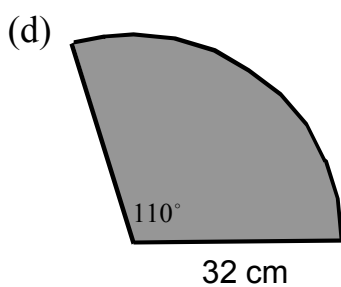
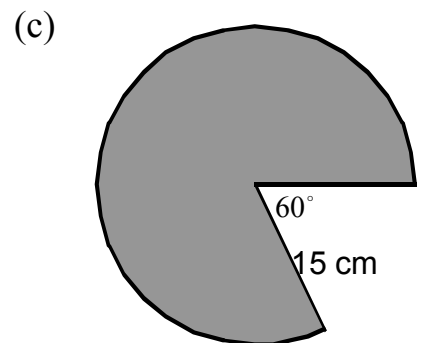
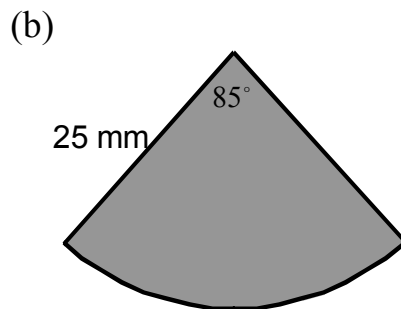
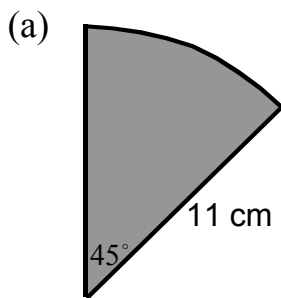


## Arcs and Sectors

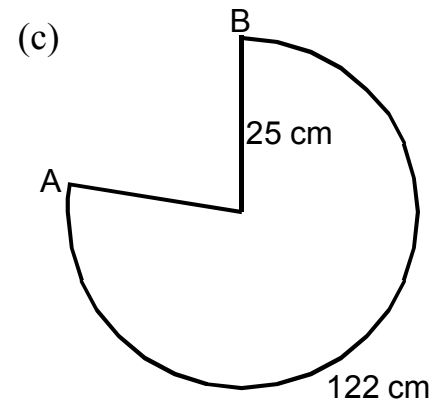
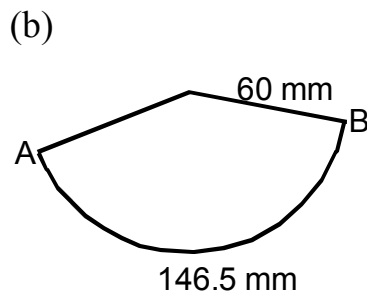
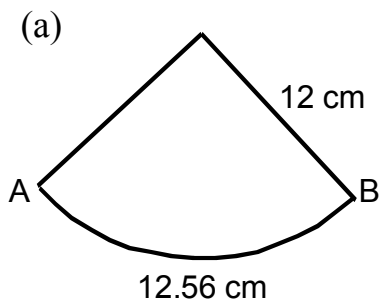
1. Calculate the length of arc AB in each question below



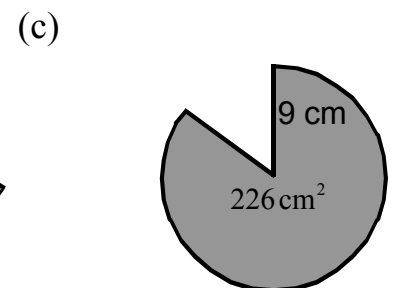
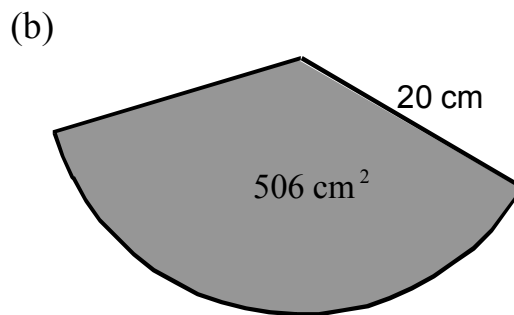
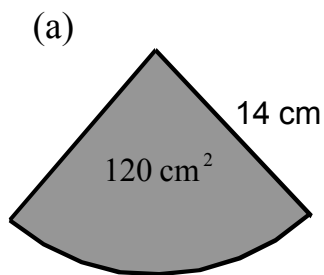
2. Calculate the area of each sector below.



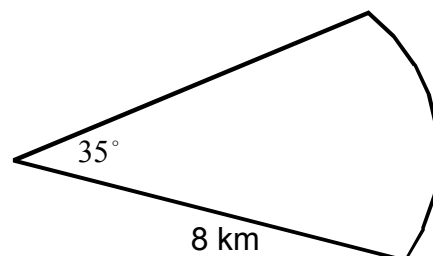
3. In each diagram below the length of arc AB is given. Calculate the size of the angle at the centre of the sector.



4. In each diagram below the area of the sector is given. Calculate the size of the angle at the centre of the sector.

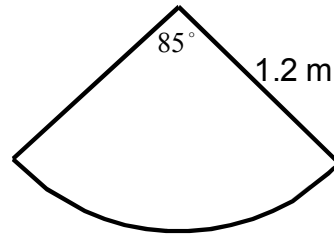


5. The beam from a lighthouse reaches a distance of 8 kilometres and spreads to an angle of  $35^\circ$ .



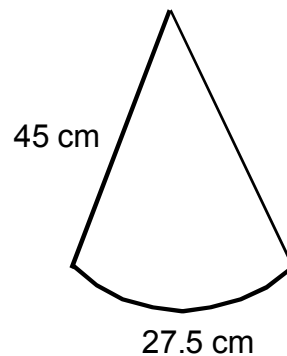
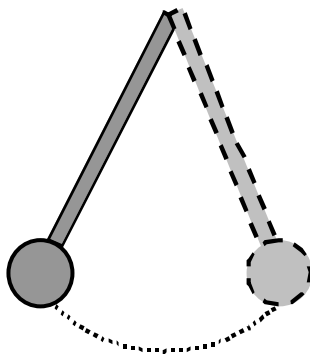
Calculate the area covered by the beam from the lighthouse.

6. The curved part on an anchor is in the shape of an arc of a circle which has radius 1.2 metres.



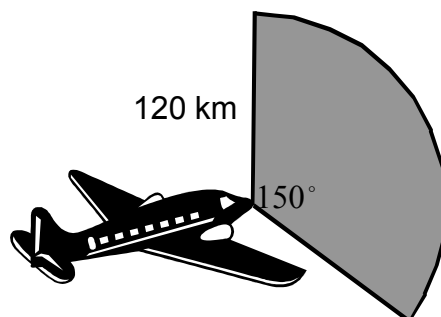
Calculate the length of this arc.

7. A pendulum is 45 centimetres long. When the pendulum swings it travels along the arc of a circle and covers a distance of 27.5 centimetres.



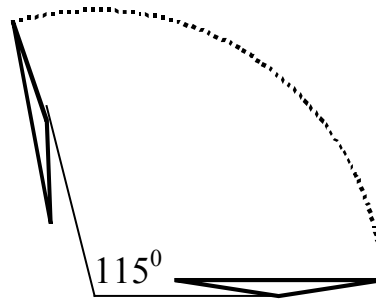
Calculate the size of the angle through which the pendulum travels.

8. The radar beam sent out by an aeroplane reaches a distance of 120 kilometres and covers an angle of  $150^\circ$ .



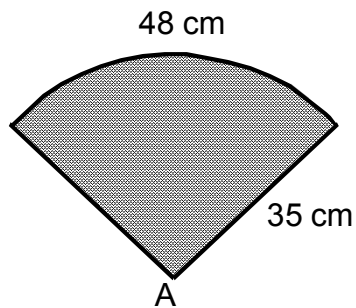
Calculate the area covered by the beam.

9. A windscreen wiper is 45 centimetres long. In one sweep it turns through an angle of  $115^\circ$ .



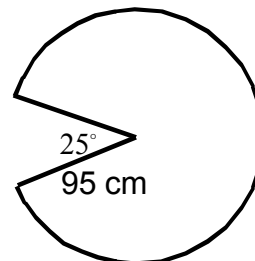
Calculate the distance it covers in one sweep.

10. A fan is in the shape of an arc of a circle with radius 35 centimetres.

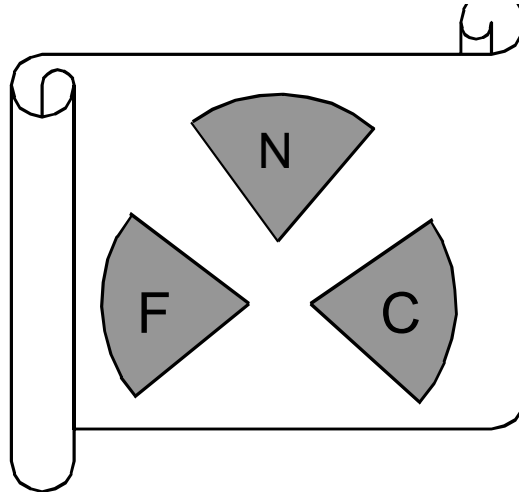


Calculate the size of the angle at A.

11. The path traced by a golfer's club when he hits the ball is an arc of a circle. If the golf club is 95 centimetres long, calculate the distance travelled when the golfer swings his club.

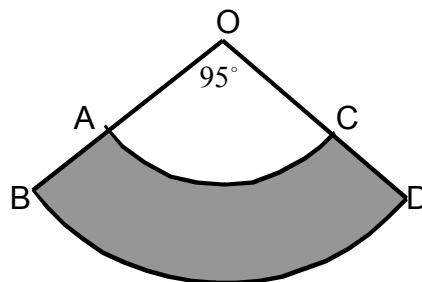


12. The diagram below shows the emblem for a sports club. The emblem consists of 3 identical sectors of a circle, each of radius 16 millimetres.



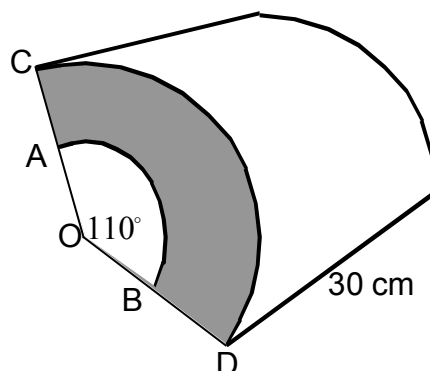
The sectors have a combined area of 335 square millimetres. Calculate the size of angle at the centre of each sector.

13. In the diagram below AC and BD are arcs of circles with centres at O. The radius, OA, is 10 centimetres and the radius, OB, is 16 centimetres.

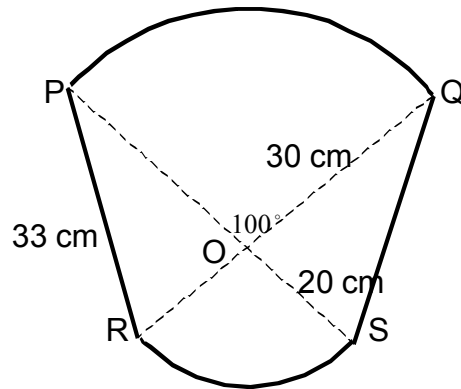


Find the shaded area.

14. The diagram shows a prism whose cross-section is the area between two sectors. One sector has radius OA = 12 centimetres and the other has radius OC = 15 centimetres. Calculate the volume of this prism.

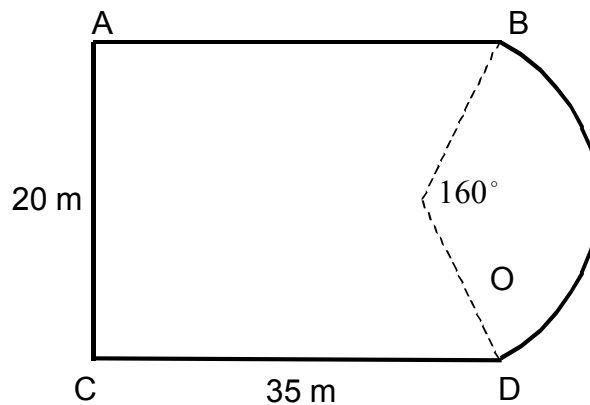


15. In the diagram PQ and RS are arcs of circles with centre O.  
The radius, OQ, is 30 centimetres long and the radius, OS, is 20 centimetres long.

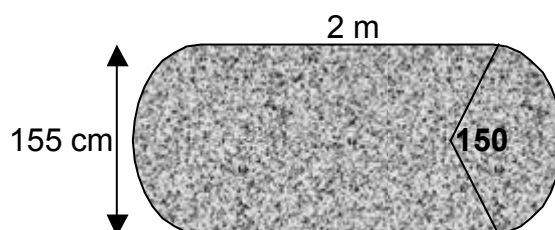


Calculate the perimeter of the shape.

16. The diagram below shows an ornamental garden. The garden is in the shape of a rectangle with a sector of a circle added at one end.  
The length of the garden is 35 metres and its breadth is 20 metres.

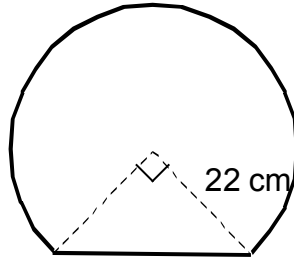


- (a) Calculate OB the radius of the sector.  
(b) Find the perimeter of the garden.
17. A worktop is in the shape of a rectangle with identical sectors of a circle, centre O, at each end. The width of the tabletop is 155 centimetres and its length is 2 metres.



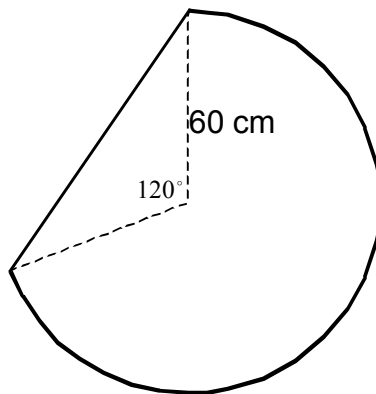
Calculate the perimeter of the worktop.

18. The diagram below shows a mirror. The mirror is in the shape of the sector of a circle with a straight base. The radius of the sector is 22 centimetres.



Calculate the distance round the outside of the mirror.

19. The diagram below shows a kitchen table. The tabletop consists of a sector of a circle with a straight edge. The sector has radius 60 centimetres.



Calculate the perimeter of the tabletop.